

AMENDMENTS TO THE CLAIMS

1. (Original) A field emission device comprising an emitter tip formed from and integral with an emitter layer, the emitter tip having a height and including a base and an apex, wherein said emitter tip has a substantially rectilinear profile between said base and said apex, said substantially rectilinear profile being defined by a tip arc length and a tip chord length, wherein the ratio of said arc length to said chord length is less than or equal to about 1.2:1.

2. (Original) A field emission device according to claim 1, wherein the ratio of said tip arc length to said tip chord length is less than or equal to about 1.1:1.

3. (Original) A field emission device according to claim 1, wherein the ratio of said tip arc length to said tip chord length is less than or equal to about 1.05:1.

4. (Original) A field emission device according to claim 1, wherein the ratio of said tip arc length to said tip chord length is less than or equal to about 1.01:1.

5. (Original) A field emission device comprising:

an emitter layer including an emitter tip that has a height and including a base and an apex, wherein said emitter tip has a rectilinear profile between said base and said apex that is defined by a tip arc length and a tip chord length, wherein the ratio of said arc length to said chord length is less than or equal to about 1.2:1;

a substrate; and

a cathode conductive layer disposed over said substrate, said emitter tip being disposed over said cathode conductive layer.

6. (Original) A field emission device according to Claim 5, further comprising:

a conductive gate structure disposed over said cathode conductive layer;

an aperture through said conductive gate structure, said emitter tip being exposed within said aperture; and

an anode panel positioned over said conductive gate structure and said emitter tip.

7. (Original) A field emission device according to Claim 6, wherein said anode plane comprises:

an anode conductive layer;

a phospholuminescent panel for emitting light upon being excited by electrons; and

a transparent panel.

8. (Original) A flat panel display device comprising:

a substrate;

a cathode conductive layer disposed over said substrate;

an array of emitter tips each formed from an emitter layer disposed over said substrate, each of said emitter tips having a height and including a base and an apex, each of said emitter tips having a substantially rectilinear profile between said base and said apex that is defined by a tip arc length and a tip chord length, wherein the ratio of said arc length to said chord length is less than or equal to about 1.2:1;

a conductive gate structure disposed over said cathode conductive layer;

an array of apertures formed through said conductive gate structure, each of said emitter tips being exposed through one of said apertures; and

an anode panel for emitting light in response to electrons emitted from said array of emitter tips.

9. (Currently Amended) A field emission device comprising:

a substrate;

a cathode conductive layer disposed over said substrate; and

an emitter tip integral with and etched entirely from an emitter layer disposed over said cathode conductive layer and having a base plane adjacent to the emitter layer, an apex, and a continuously concave exterior surface extending from the base plane to the apex.

10. (Original) A field emission device according to Claim 9, further comprising:
- a conductive gate structure disposed over said cathode conductive layer;
 - an aperture through said conductive gate structure, said emitter tip being exposed within said aperture; and
 - an anode panel positioned over said conductive gate structure and said emitter tip.

11. (Original) A field emission device according to Claim 10, wherein said anode panel comprises:

- an anode conductive layer;
- a phospholuminescent panel for emitting light upon being excited by electrons; and
- a transparent panel.

12. (Currently Amended) A field emission device comprising:
- a substrate;
 - a cathode conductive layer disposed over said substrate; and
 - a monolithic ~~an~~ emitter tip projecting from and integral with an emitter layer disposed over said cathode conductive layer and having a base plane adjacent to the emitter layer, an apex, and an exterior surface, said exterior surface having a substantially paraboloid vertical profile that extends from the base plane to the apex.

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13. (Original) A field emission device according to Claim 12, further comprising:
a conductive gate structure disposed over said cathode conductive layer;
an aperture through said conductive gate structure, said emitter tip being exposed within said aperture; and
an anode panel positioned over said conductive gate structure and said emitter tip.

14. (Original) A field emission device according to Claim 13, wherein said anode panel comprises:
an anode conductive layer;
a phospholuminescent panel for emitting light upon being excited by electrons; and
a transparent panel.

15. (Currently Amended) A field emission device comprising:
a substrate;
a cathode conductive layer disposed over said substrate; and
an emitter tip that is an integral portion of a single emitter layer disposed over said cathode conductive layer and having a base plane adjacent to the emitter layer, an apex, and an exterior surface, said exterior surface having an ovoid profile that extends from the base plane to the apex, wherein the emitter tip and the single emitter layer are formed of a single material.

16. (Original) A field emission device according to Claim 15, further comprising:
a conductive gate structure disposed over said cathode conductive layer;
an aperture through said conductive gate structure, said emitter tip being exposed within said aperture; and
an anode panel positioned over said conductive gate structure and said emitter tip.

17. (Original) A field emission device according to Claim 16, wherein said anode panel comprises:
an anode conductive layer;
a phospholuminescent panel for emitting light upon being excited by electrons; and
a transparent panel.

18. (Currently Amended) A field emission device comprising an emitter tip formed from an emitter layer, the emitter tip having a height and including a base plane and an apex, wherein said emitter tip is generally conical and has a substantially rectilinear profile between said base plane and said apex, and wherein the emitter tip and the single emitter layer are formed of a single material.

19. (Original) A field emission device according to Claim 18, wherein said substantially rectilinear profile is defined by a tip arc length and a tip chord length, wherein the ratio of said arc length to said chord length is less than or equal to about 1.2:1.

20. (Previously Amended) A flat panel display device comprising:

a substrate;

a cathode conductive layer disposed over said substrate;

an array of monolithic emitter tips formed as a part of an emitter layer disposed over said substrate, each of said emitter tips having a height and including a base plane adjacent to the emitter layer and an apex, each of said emitter tips having an exterior surface, said exterior surface having a profile with a continuous shape that extends from the base plane to the apex, said continuous shape being selected from the group consisting of a concave shape, a substantially paraboloid shape, and an ovoid shape;

a conductive gate structure disposed over said cathode conductive layer;

an array of apertures formed through said conductive gate structure, each of said emitter tips being exposed through one of said apertures; and

an anode panel for emitting light in response to electrons emitted from said array of emitter tips.
